



[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2014-0920; Directorate Identifier 2014-NM-192-AD; Amendment 39-18135; AD 2015-07-07]

RIN 2120-AA64

Airworthiness Directives; The Boeing Company Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: We are adopting a new airworthiness directive (AD) for certain The Boeing Company Model 777-200, -200LR, -300ER, and 777F series airplanes. This AD was prompted by a report of a jettison fuel pump that was shut off by the automatic shutoff system during the center tank fuel scavenge process on a short-range flight and a subsequent failure analysis of the fuel scavenge system. This AD requires making wiring changes, modifying certain power panels, installing electrical load management system 2 (ELMS2) software, and accomplishing a functional test. We are issuing this AD to prevent extended dry running of the jettison fuel pumps, which can be a potential ignition source inside the main fuel tanks, and consequent fuel tank fire or explosion in the event that the jettison pump overheats or has an electrical fault.

DATES: This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: For Boeing service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P. O. Box 3707, MC 2H-65, Seattle, WA 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; Internet <https://www.myboeingfleet.com>. It is also available on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2014-0920.

For GE Aviation service information identified in this AD, contact GE Aviation Fleet Support, 1 Neumann Way, Cincinnati, OH 45215; phone: 513-552-3272; email: aviation.fleetsupport@ge.com; Internet: <http://www.geaviation.com>. You may view this referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2014-0920; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this AD, the regulatory evaluation, any comments received, and other information. The address for the Docket Office (phone: 800-647-5527) is Docket Management Facility, U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

FOR FURTHER INFORMATION CONTACT: Tak Kobayashi, Aerospace Engineer, Propulsion Branch, ANM-140S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6499; fax: 425-917-6590; email: takahisa.kobayashi@faa.gov.

SUPPLEMENTARY INFORMATION:

Discussion

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to certain The Boeing Company Model 777-200, -200LR, -300ER, and 777F series airplanes. The NPRM published in the Federal Register on December 10, 2014 (79 FR 73252). The NPRM was prompted by a report of a jettison fuel pump that was shut off by the automatic shutoff system during the center tank fuel scavenge process on a short-range flight. The NPRM proposed to require making wiring changes, modifying certain power panels, installing ELMS2 software, and accomplishing a functional test. We are issuing this AD to prevent extended dry running of the jettison fuel pumps, which can be a potential ignition source inside the main fuel tanks, and consequent fuel tank fire or explosion in the event that the jettison pump overheats or has an electrical fault.

Comments

We gave the public the opportunity to participate in developing this AD. The following presents the comments received on the NPRM and the FAA's response to each comment.

Concurrence with NPRM (79 FR 73252, December 10, 2014)

FedEx stated that it concurs with the proposed requirements specified in NPRM (79 FR 73252, December 10, 2014).

Request to Revise Costs of Compliance Section

The Boeing Company (Boeing) requested that we revise the Costs of Compliance section of the NPRM (79 FR 73252, December 10, 2014). Boeing explained that the number of airplanes used in the cost estimate calculations is incorrect. For Groups 1 through 4 airplanes identified in Boeing Special Attention Service Bulletin 777-28-0083, dated September 8, 2014, for which hardware and software changes are required, the

number of affected U.S. registered airplanes is 9, instead of 7. For Group 5 airplanes, for which an ELMS2 software update is required, the number of affected U.S. registered airplanes is 2, not 4.

We agree with the commenter. We have changed the number of airplanes in the “Costs of Compliance” section of this AD accordingly. We have also used information in Boeing Special Attention Service Bulletin 777-28-0083, Revision 1, dated March 6, 2015, to calculate the estimated costs.

Requests to Include Revised Service Information

Boeing, All Nippon Airways (ANA), and FedEx requested that we revise the NPRM (79 FR 73252, December 10, 2014) to refer to a new revision of Boeing Special Attention Service Bulletin 777-28-0083. Boeing, ANA, and FedEx stated that a revised service bulletin is expected to be sent to the FAA before the release of this AD and that referencing the revised service bulletin would eliminate the need for alternative methods of compliance (AMOC) approval of the revised service bulletin.

We agree with the commenters. Boeing has issued Special Attention Service Bulletin 777-28-0083, Revision 1, dated March 6, 2015. This service bulletin was revised to correct wire length and part numbers in wire kits. We have changed this AD to reference Boeing Special Attention Service Bulletin 777-28-0083, Revision 1, dated March 6, 2015, throughout. We have also added paragraph (h) of this AD to give credit for actions performed before the effective date of this AD using Boeing Special Attention Service Bulletin 777-28-0083, dated September 8, 2014, and have redesignated subsequent paragraphs accordingly.

Request to Revise the Unsafe Condition

Boeing requested that we revise the unsafe condition, as described in paragraph (e) of the NPRM (79 FR 73252, December 10, 2014). Boeing stated that the fuel jettison pumps that are the subject of this AD are not a potential fuel tank ignition source because the pumps in question have been qualified to run dry without causing adverse pump operating temperatures for 600 hours. The jettison pump design includes redundant safety features to prevent fuel tank ignition. Boeing also stated that, based on service history and given the number of flight hours accrued by Model 777 airplanes, a conservative analysis shows the chance of a jettison pump running dry and causing a fuel tank ignition is less than extremely improbable.

We disagree to revise the unsafe condition as stated in the Summary and paragraph (e) of this AD. We acknowledge that the fuel jettison pumps in question are properly qualified, and there is no known failure condition that could result in an ignition source. However, based on service experience of various types of fuel pumps, the FAA and industry may be unable to anticipate all of the possible mechanical and electrical failure modes of the fuel pumps that could result in an ignition source. For example, fuel pump qualification tests do not evaluate dry running of a fuel pump with debris ingested. Therefore, we have determined that extended dry running of the fuel jettison pump is a potential ignition source. We have made no changes to this AD in this regard.

Conclusion

We reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting this AD with the changes described previously and minor editorial changes. We have determined that these minor changes:

- Are consistent with the intent that was proposed in the NPRM (79 FR 73252, December 10, 2014) for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM (79 FR 73252, December 10, 2014).

We also determined that these changes will not increase the economic burden on any operator or increase the scope of this AD.

Related Service Information under 1 CFR part 51

We reviewed Boeing Special Attention Bulletin 777-28-0083, Revision 1, dated March 6, 2015. The service information describes, among other actions, procedures for making wiring changes to the engine fuel feed system, modifying certain power panels, installing ELMS2 software, and accomplishing a functional test. Refer to this service information for information on the procedures and compliance times. This service information is reasonably available; see ADDRESSES for ways to access this service information.

Costs of Compliance

We estimate that this AD affects 11 airplanes of U.S. registry.

We estimate the following costs to comply with this AD:

Estimated costs

| Action | Labor cost | Parts cost | Cost per product | Cost on U.S. operators |
|--|---|-------------------|-------------------------|-------------------------------|
| Group 1 through Group 4 airplanes: Hardware and software changes (9 airplanes) | Up to 40 work-hours X \$85 per hour = \$3,400 | Up to \$1,461 | \$4,861 | Up to \$43,749 |
| Group 5 airplanes: ELMS2 software update (2 airplanes) | 8 work-hours X \$85 per hour = \$680 | \$0 | \$680 | \$1,360 |

According to the manufacturer, some of the costs of this AD may be covered under warranty, thereby reducing the cost impact on affected individuals. We do not control warranty coverage for affected individuals. As a result, we have included all costs in our cost estimate.

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

This AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

- (1) Is not a "significant regulatory action" under Executive Order 12866,
- (2) Is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
- (3) Will not affect intrastate aviation in Alaska, and

(4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

Adoption of the Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by adding the following new airworthiness directive (AD):

2015-07-07 The Boeing Company: Amendment 39-18135; Docket No. FAA-2014-0920; Directorate Identifier 2014-NM-192-AD.

(a) Effective Date

This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

None.

(c) Applicability

This AD applies to The Boeing Company Model 777-200, -200LR, -300ER, and 777F series airplanes, certificated in any category, as identified in Boeing Special Attention Service Bulletin 777-28-0083, Revision 1, dated March 6, 2015.

(d) Subject

Air Transport Association (ATA) of America Code 28: Fuel.

(e) Unsafe Condition

This AD was prompted by a report of a jettison fuel pump that was shut off by the automatic shutoff system during the center tank fuel scavenge process on a short-range flight. We are issuing this AD to prevent extended dry running of the jettison fuel pumps, which can be a potential ignition source inside the main fuel tanks, and consequent fuel tank fire or explosion in the event that the jettison pump overheats or has an electrical fault.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Wiring and Software Changes

(1) For Groups 1 through 4 airplanes, as identified in Boeing Special Attention Service Bulletin 777-28-0083, Revision 1, dated March 6, 2015: Within 36 months after the effective date of this AD, make wiring changes, modify power panels P110 and P210, install electrical load management system 2 (ELMS2) software, and accomplish the functional test and all applicable corrective actions, in accordance with the Accomplishment Instructions of Boeing Special Attention Service Bulletin 777-28-0083, Revision 1, dated March 6, 2015. Do all applicable corrective actions before further flight.

(2) For Group 5 airplanes, as identified in Boeing Special Attention Service Bulletin 777-28-0083, Revision 1, dated March 6, 2015: Within 12 months after the effective date of this AD, install ELMS2 software, and accomplish the functional test and all applicable corrective actions, in accordance with the Accomplishment Instructions of Boeing Special Attention Service Bulletin 777-28-0083, Revision 1, dated March 6, 2015. Do all applicable corrective actions before further flight.

Note 1 to paragraph (g) of this AD: GE Aviation Service Bulletin 5000ELM-28-075, Revision 1, dated August 5, 2014; and GE Aviation Service Bulletin 6000ELM-28-076, Revision 1, dated August 5, 2014; are additional sources of guidance for modifying the P110 and P210 panels, respectively.

(h) Credit for Previous Actions

This paragraph provides credit for actions required by paragraphs (g)(1) and (g)(2) of this AD, if those actions were performed before the effective date of this AD using Boeing Special Attention Service Bulletin 777-28-0083, dated September 8, 2014, which is not incorporated by reference in this AD.

(i) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Seattle Aircraft Certification Office (ACO), FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the ACO, send it to the attention of the person identified in paragraph (j)(1) of this AD. Information may be emailed to: 9-ANM-Seattle-ACO-AMOC-Requests@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(3) An AMOC that provides an acceptable level of safety may be used for any repair required by this AD if it is approved by the Boeing Commercial Airplanes Organization Designation Authorization (ODA) that has been authorized by the Manager, Seattle ACO, to make those findings. For a repair method to be approved, the repair must meet the certification basis of the airplane, and the approval must specifically refer to this AD.

(4) If the service information contains steps or procedures that are identified as RC (Required for Compliance), those steps or procedures must be done to comply with this AD; any steps or procedures that are not identified as RC are recommended. Those steps or procedures that are not identified as RC may be deviated from, done as part of other actions, or done using accepted methods different from those identified in the specified service information without obtaining approval of an AMOC, provided the steps or procedures identified as RC can be done and the airplane can be put back in a serviceable condition. Any substitutions or changes to steps or procedures identified as RC require approval of an AMOC.

(j) Related Information

(1) For more information about this AD, contact Tak Kobayashi, Aerospace Engineer, Propulsion Branch, ANM-140S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6499; fax: 425-917-6590; email: takahisa.kobayashi@faa.gov.

(2) For GE Aviation service information identified in this AD that is not incorporated by reference in this AD, contact GE Aviation service information identified in this AD, contact GE Aviation Fleet Support, 1 Neumann Way, Cincinnati, OH 45215; phone: 513-552-3272; email: aviation.fleetsupport@ge.com; Internet: <http://www.geaviation.com>.

(k) Material Incorporated by Reference

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(i) Boeing Special Attention Service Bulletin 777-28-0083, Revision 1, dated March 6, 2015.

(ii) Reserved.

(3) For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P. O. Box 3707, MC 2H-65, Seattle, WA 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; Internet <https://www.myboeingfleet.com>.

(4) You may view this service information at FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221.

(5) You may view this service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: <http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued in Renton, Washington, on March 27, 2015.

Michael Kaszycki,
Acting Manager,
Transport Airplane Directorate,
Aircraft Certification Service.

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